SCOTTSDALE TRANSPORTATION COMMISSION REPORT

To: **Transportation Commission**
From: **George Williams, Principal Traffic Engineer**
Phillip Kercher, Traffic Engineering Manager
Subject: **Collision Mitigation Case Studies**
Meeting Date: **20 November 2014**

ITEM IN BRIEF

Action:

Information

Purpose:

Inform the Transportation Commission of on-going efforts of the City of Scottsdale Traffic Engineering group to improve transportation safety within the city of Scottsdale. Examples of several recent intersection safety improvement projects will be presented.

Background:

There are several ways that Traffic Engineering may be notified of a collision trend at one of our major intersections in the city of Scottsdale. These primarily consist of the following three methods.

Traffic Engineering identifies the twenty intersections with the highest collision experience based upon reviewing the number of collisions and collision rate data contained in the *Traffic Volume and Collision Rate Data* document, which is compiled and published every other year. This document was discussed with the Transportation Commission in May of this year.

Citizens routinely contact Traffic Engineering staff to inform us when they have concerns about intersection safety, including when a serious collision occurs or when a series of collisions have occurred.

The Maricopa Association of Governments (MAG) compiles a list of the 100 intersections in the Valley Metro Region with the highest collision experience based upon collision data collected by the Arizona Department of Transportation.

Once an intersection is identified as needing to be analyzed for collision trends and determination of possible mitigation, there are several processes that may be followed depending upon the urgency of the situation.

Some intersections are included in the list of “high collision” intersections that qualify for Road Safety Assessments, which are typically approved and funded by MAG. This is a fairly formal process that involves an assessment of the current conditions at the intersection based upon field visits and collision analysis. Recommendations for safety improvements are provided by a panel that consists of traffic engineering professionals, safety experts, and law enforcement personnel.

The city of Scottsdale Traffic Engineering Division also performs road safety assessments at intersections with the highest collision experience as identified by the *Traffic Volume and Collision Rate Data* document. This is a less formal process in that it does not involve outside agency members and usually focuses on the intersections that fall within the top twenty for collision experience. These roadway safety assessments also involve field observations and a thorough collision analysis to identify collision patterns and safety concerns. Traffic Engineering is also developing a more routine road safety assessment program to address the street segments and intersections that are not in the “top twenty” for each category.

When Traffic Engineering is notified of a significant collision or a series of collisions at an intersection, the engineer assigned to the area in which the intersection is located immediately begins reviewing the collision history, identifying the collision trends, doing field observations, and developing potential mitigation measures. The results of this effort may be immediate recommendations for traffic control changes or they may lead to a more formal roadway safety assessment.

Once the collision patterns and factors are evaluated at an intersection, and observations of the existing intersection conditions are performed, Traffic Engineering recommends mitigation measures to improve safety. These mitigation measures may take several forms as outlined below.

Safety improvements may be incorporated into street improvement projects that are constructed through the City's Capital Improvement Program. Some of the intersections that have had formal roadway safety assessments conducted may qualify for federal funding through MAG's Highway Safety Improvement Program (HSIP).

Mitigation measures that require additional auxiliary lanes (left turn or right turn lanes) may be addressed as minor street improvement projects using capital improvement funding such as the Intersection Mobility Enhancement (IME) funds.

Safety concerns may be addressed through installing or modifying traffic control devices, regulatory or warning signs, pavement markings, roundabouts, traffic signals, or landscaping.

CASE STUDIES

Examples of safety improvements that have been performed recently at intersections in the city of Scottsdale will be presented and discussed. These intersections include the following:

Hayden Road and Chaparral Road – This intersection was evaluated through the formal Roadway Safety Assessment Program. The significant collision trend involved eastbound through and westbound left turn vehicles. The major improvement was a modification to the traffic signal phasing for the east-west left turn movements to eliminate the permissive movement.

Cactus Road and 104th Street – This intersection was identified as a "top twenty" collision intersection. The significant collision trend involved northbound and southbound through vehicles hit by eastbound and westbound through vehicles. A roundabout was constructed at the intersection as part of the Cactus Road capital improvement project to mitigate these angle crashes.

Drinkwater Boulevard and Osborn Road – This intersection was identified as a "top twenty" collision intersection. Staff evaluated the collisions and determined that the pedestrian signal just west of the intersection was the major factor in a number of collisions. The pedestrian signal was replaced with two unsignalized pedestrian crossings.

Thompson Peak Parkway and Bell Road – This intersection was identified as a "top twenty" collision intersection. The significant collision trend involved northbound left turn vehicles hit by southbound through vehicles. Based upon a review of the collision history and field observations, landscaping was trimmed or removed by city crews to improve sight distance.

Frank Lloyd Wright Boulevard and Cactus Road – There were a series of collisions at the intersection involving northbound and southbound left turn movements. After some traffic signal modifications were implemented, a minor capital improvement project modified the Frank Lloyd Wright Boulevard medians to provide a positive left turn offset, which improves sight distance. Also, photo enforcement was installed at the intersection to help reduce the number of high speed violators on Frank Lloyd Wright Boulevard.

Rio Verde and 136th Street – Area residents expressed concerns about safety due to the lack of an eastbound left turn lane on Rio Verde at 136th Street. The intersection was reviewed and the significant collision trends involved eastbound left turn vehicles hit by westbound through vehicles, and eastbound rear-end collisions. Funding was secured through a safety grant from Maricopa County, and intersection improvements were constructed.

Hayden Road and Camelback Road – There were a series of collisions between eastbound left turn and westbound through vehicles. Based upon a review of the collision history and field observations, a work order was written and the signal phasing was modified to address the collision pattern.

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